

CLAIMS

1 Apparatus for switching data from any of a plurality of inputs to any of a plurality of
2 outputs, comprising:
3 apparatus for receiving a plurality of input bit packs organized in a combination of
4 input data rails and time slots,
5 apparatus for selecting one of the input bit packs from one of the rails in one of the
6 time slots, and
7 apparatus for conveying said selected bit pack to an output data position within a
8 combination of output data rails and time slots.

1 2. Apparatus of claim 1, wherein each bit pack is one bit wide.

1 3. Apparatus of claim 1, wherein said apparatus for receiving, selecting, and
2 conveying a plurality of bit packs is configured for selecting a plurality of input bit
3 packs for output in a plurality of output data positions.

1 4. Apparatus of claim 1, wherein said apparatus for receiving, selecting, and
2 conveying a plurality of bit packs is configured for selecting a single bit pack for
3 output in a plurality of output positions.

1 Apparatus for switching data from any of N input positions arranged as T time slots
2 on R rails to any of M output positions arranged as T2 time slots on R2 rails,
3 comprising:
4 apparatus for receiving input data arranged as bit packs in T time slots on R rails,
5 apparatus for selecting data from one of the R rails and latching the selected data
6 during a predetermined time slot to thereby select a bit pack of predetermined R
7 and T values, and

8 apparatus for conveying said selected bit pack to an output position of
9 predetermined R2 and T2 values.

1 6. Apparatus for switching data from any of N input positions arranged as T time slots
2 on R rails to any of M output positions arranged as T2 time slots on R2 rails,
3 comprising:
4 M selection blocks, each configured to select a bit pack for a different one of the
5 output positions, and each block including:
6 apparatus for receiving input data arranged as bit packs in T time slots on R
7 rails,
8 apparatus for selecting data from one of the R rails and latching the selected
9 data during a predetermined time slot to thereby select a bit pack of predetermined
10 R and T values, and
11 apparatus for conveying said selected bit pack to an output position of
12 predetermined T2 and R2 values.

1 7. Apparatus of claim 6 further comprising:
2 a T2 X R2 output bit map configured for receiving a selected bit pack in each
3 location from a different one of the M selection blocks.

1 8. Apparatus of claim 7 further comprising:
2 a second T2 X R2 output bit map configured to be loaded in parallel from the first
3 output bit map.

1 9. Apparatus of claim 8 further comprising:
2 apparatus configured to arrange input bit packs as an array of T time slots on R
3 rails and to convey output bit packs from the second T2 X R2 bit map on R2 rails
4 in T2 time slots.

1 10. Apparatus of claim 9 wherein $N = M = 768$.

Sub 3
11. Apparatus for switching data from any of N input positions arranged as T time slots on R rails to any of M output positions arranged as T_2 time slots on R_2 rails, comprising:
2
3
4 R_2 selection blocks, each configured to select a bit pack for a different one of the
5 output positions, and each block including:
6 apparatus for receiving input data arranged as bit packs on N rails,
7 apparatus for selecting data from one of the N rails, and
8 apparatus for conveying said selected bit pack to an output position of
9 predetermined T_2 and R_2 values.

1 12. Apparatus of claim 11 further comprising:
2 a $T \times R$ input bit map configured for receiving a selected bit pack in each location
3 from a different one of the N space/time input positions.

1 13. Apparatus of claim 12 further comprising:
2 a second $T \times R$ input bit map configured to be loaded in parallel from the first input
3 bit map and to convey N input bit packs to each of the R_2 selection blocks and to
4 hold the N input bit packs available to the R_2 selection blocks during T_2 time slots.

1 14. Apparatus of claim 10 further comprising:
2 apparatus configured to arrange input bit packs as an array of T time slots on R
3 rails and to convey output bit packs from the second $T_2 \times R_2$ bit map on R_2 rails
4 in T_2 time slots.

1 15. Apparatus of claim 14 wherein $N = M = 768$.

1 16. A method of switching data from any of N input positions arranged as T time slots
2 on R rails to any of M output positions arranged as T2 time slots on R2 rails,
3 comprising the steps of :
4 (a) in each of R2 selection blocks, selecting a bit pack for a different one of the
5 output positions, and
6 (b) conveying each of the bit packs selected in step (a) to the associated one of
7 the output positions.

1 17. The method of claim 16 wherein step (a) comprises the further step of :
2 (c) receiving input data arranged as bit packs on N rails.

1 18. The method of claim 17 wherein step (a) comprises the further step of:
2 (d) selecting a bit pack from one of the N rails.

1 19 The method of claim 18 wherein step a comprises the further step of:
2 (e) conveying said selected bit pack to an output position of predetermined T2
3 and R2 values.

1 20. A method of switching data from any of N input positions arranged as T time slots
2 on R rails to any of M output positions arranged as T2 time slots on R2 rails,
3 comprising the steps of :
4 (a) in each of M selection blocks, selecting a bit pack for a different one of the
5 output positions, and
6 (b) conveying each of the bit packs selected in step (a) to the associated one of
7 the output positions.

1 21. The method of claim 20 wherein step (a) further comprises the steps of:
2 (c) receiving input data arranged as bit packs in T time slots on R rails, and

3 (d) selecting data from one of the R rails and latching the selected data during a
4 predetermined time slot to thereby select a bit pack of predetermined R and T
5 values.

1 22. The method of claim 21 wherein step (b) further comprises the step of:
2 (e) conveying said selected bit pack to an output position of predetermined T2
3 and R2 values.

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